optionally substituted heteroaryl-, optionally substituted heterocyclyl-, acyl-, alkoxycarbonyl-, sulfanyl-, sulfinyl and sulfonyl-, e.g., diethylamino, methylsulfonylamino, furanyloxy-sulfonamino.

[0084] Aminocarbonyl- refers to the group —NR^cCOR^b, —$NR^cCO_2R^a$, or —$NR^cCONR^bR^c$, where

[0085] R^1 is optionally substituted C_1-C_6 alkyl-, aryl-, heteroaryl-, aryl-C_1-C_4 alkyl-, or heteroaryl-C_1-C_4 alkyl-group;

[0086] R^b is H or optionally substituted C_1-C_6 alkyl-, aryl-, heteroaryl-, aryl-C_1-C_4 alkyl-, or heteroaryl-C_1-C_4 alkyl- group; and

[0087] R^c is hydrogen, alkyl-; aryl- or heteroaryl-; and where each optionally substituted R^b group is independently unsubstituted or substituted with one or more substituents independently selected from C_1-C_4 alkyl-, aryl-, heterocyclyl-, aryl-C_1-C_4 alkyl-, heteroaryl-C_1-C_4 alkyl-, C_1-C_4 haloalkyl-, —OC_1-C_4 alkyl, —OC_1-C_4 alkylphenyl, —C_1-C_4 alkyl-OH, —OC_1-C_4 haloalkyl, halogen, —OH, —NH_2, —$NR^cC(NR^b)(NR^bR^c)$ (i.e. guanidine), —$NR^cCR^bNR^bR^c$, —$CNR^cNR^bR^c$, —C_1-C_4 alkyl-NH_2, —$N(C_1$-C_4 alkyl)(C_1-C_4 alkyl), —$NH(C_1$-C_4 alkyl), —$N(C_1$-C_4 alkyl)(C_1-C_4 alkylphenyl), —$NH(C_1$-C_4 alkylphenyl), cyano, nitro, oxo (as a substituent for heteroaryl), —CO_2H, —$C(O)OC_1$-C_4 alkyl-, —$CON(C_1$-C_4 alkyl)(C_1-C_4 alkyl), —$CONH(C_1$-C_4 alkyl), —$CONH_2$, —$NHC(O)(C_1$-C_4 alkyl), —NHC(O)(phenyl), —$N(C_1$-C_4 alkyl)$C(O)(C_1$-C_4 alkyl), —$N(C_1$-C_4 alkyl)C(O)(phenyl), —$C(O)C_1$-C_4 alkyl-, —$C(O)C_1$-C_4 phenyl-, —$C(O)C_1$-C_4 haloalkyl-, —$OC(O)C_1$-C_4 alkyl-, —$SO_2(C_1$-C_4 alkyl), —SO_2(phenyl), —$SO_2(C_1$-C_4 haloalkyl), —SO_2NH_2, —$SO_2NH(C_1$-C_4 alkyl), —SO_2NH(phenyl), —$NHSO_2(C_1$-C_4 alkyl), —$NHSO_2$(phenyl), and —$NHSO_2(C_1$-C_4 haloalkyl).

[0088] Antimitotic refers to a drug for inhibiting or preventing mitosis, for example, by causing metaphase arrest. Some antitumour drugs block proliferation and are considered antimitotics.

[0089] Aryl and heteroaryl mean a 5- or 6-membered aromatic or heteroaromatic ring containing 0 or 1-4 heteroatoms, respectively, selected from O, N, or S; a bicyclic 9- or 10-membered aromatic or heteroaromatic ring system containing 0 or 1-4 (or more) heteroatoms, respectively, selected from O, N, or S; or a tricyclic 12- to 14-membered aromatic or heteroaromatic ring system containing 0 or 1-4 (or more) heteroatoms, respectively, selected from O, N, or S. The aromatic 6- to 14-membered carbocyclic rings include, e.g., phenyl-, naphthyl-, indanyl-, tetralinyl-, and fluorenyl and the 5- to 10-membered aromatic heterocyclic rings include, e.g., imidazolyl-, pyridinyl-, indolyl-, thienyl-, benzopyranonyl-, thiazolyl-, furanyl-, benzimidazolyl-, quinolinyl-, isoquinolinyl-, quinoxalinyl-, pyrimidinyl-, pyrazinyl-, tetrazolyl and pyrazolyl-.

[0090] Aralkyl- refers to a residue in which an aryl moiety is attached to the parent structure via an alkyl residue. Examples include benzyl-, phenethyl-, phenylvinyl-, phenylallyl and the like. Heteroaralkyl- refers to a residue in which a heteroaryl moiety is attached to the parent structure via an alkyl residue. Examples include furanylmethyl-, pyridinylmethyl-, pyrimidinylethyl and the like.

[0091] Aralkoxy- refers to the group —O-aralkyl. Similarly, heteroaralkoxy- refers to the group —O-heteroaralkyl-; aryloxy- refers to the group —O-aryl-; acyloxy- refers to the group —O-acyl-; heteroaryloxy- refers to the group —O-heteroaryl-; and heterocyclyloxy- refers to the group —O-heterocyclyl (i.e., aralkyl-, heteroaralkyl-, aryl-, acyl-, heterocyclyl-, or heteroaryl is attached to the parent structure through an oxygen).

[0092] Carboxyalkyl- refers to the group -alkyl-COOH.

[0093] Carboxamido refers to the group —$CONR^bR^c$, where

[0094] R^b is H or optionally substituted C_1-C_6 alkyl-, aryl-, heteroaryl-, aryl-C_1-C_4 alkyl-, or heteroaryl-C_1-C_4 alkyl- group; and

[0095] R^c is hydrogen, alkyl-; aryl- or heteroaryl-; and

[0096] where each optionally substituted R^b group is independently unsubstituted or substituted with one or more substituents independently selected from C_1-C_4 alkyl-, aryl-, heterocyclyl-, aryl-C_1-C_4 alkyl-, heteroaryl-C_1-C_4 alkyl-, C_1-C_4 haloalkyl-, —OC_1-C_4 alkyl-, —OC_1-C_4 alkylphenyl-, —C_1-C_4 alkyl-OH, —OC_1-C_4 haloalkyl-, halogen, —OH, —NH_2, —C_1-C_4 alkyl-NH_2, —$N(C_1$-C_4 alkyl)(C_1-C_4 alkyl), —$NH(C_1$-C_4 alkyl), —$N(C_1$-C_4 alkyl)(C_1-C_4 alkylphenyl), —$NH(C_1$-C_4 alkylphenyl), cyano, nitro, oxo (as a substituent for heteroaryl), —CO_2H, —$C(O)OC_1$-C_4 alkyl-, —$CON(C_1$-C_4 alkyl)(C_1-C_4 alkyl), —$CONH(C_1$-C_4 alkyl), —$CONH_2$, —$NHC(O)(C_1$-C_4 alkyl), —NHC(O)(phenyl), —$N(C_1$-C_4 alkyl)$C(O)(C_1$-C_4 alkyl), —$N(C_1$-C_4 alkyl)C(O)(phenyl), —$C(O)C_1$-C_4 alkyl-, —$C(O)C_1$-C_4 phenyl-, —$C(O)C_1$-C_4 haloalkyl-, —$OC(O)C_1$-C_4 alkyl-, —$SO_2(C_1$-C_4 alkyl), —SO_2(phenyl), —$SO_2(C_1$-C_4 haloalkyl), —SO_2NH_2, —$SO_2NH(C_1$-C_4 alkyl), —SO_2NH(phenyl), —$NHSO_2(C_1$-C_4 alkyl), —$NHSO_2$(phenyl), and —$NHSO_2(C_1$-C_4 haloalkyl). Carboxamido is meant to include carbamoyl-; lower-alkyl carbamoyl-; benzylcarbamoyl-; phenylcarbamoyl-; methoxymethyl-carbamoyl-; and the like.

[0097] Halogen or halo refers to fluorine, chlorine, bromine or iodine. Fluorine, chlorine and bromine are preferred. Dihaloaryl-, dihaloalkyl-, trihaloaryl etc. refer to aryl and alkyl substituted with the designated plurality of halogens (here, 2, 2 and 3, respectively), but not necessarily a plurality of the same halogen; thus 4-chloro-3-fluorophenyl is within the scope of dihaloaryl-.

[0098] Heterocyclyl means a cycloalkyl or aryl residue in which one to foul of the carbons is replaced by a heteroatom such as oxygen, nitrogen or sulfur. Examples of heterocycles that fall within the scope of the invention include azetidinyl-, imidazolinyl-, pyrrolidinyl-, pyrazolyl-, pyrrolyl-, indolyl-, quinolinyl-, isoquinolinyl-, tetrahydroisoquinolinyl-, benzofuranyl-, benzodioxanyl-, benzodioxyl (commonly referred to as methylenedioxyphenyl-, when occurring as a substituent), tetrazolyl-, morpholinyl-, thiazolyl-, pyridinyl-, pyridazinyl-, piperidinyl-, pyrimidinyl-, thienyl-, furanyl-, oxazolyl-, oxazolinyl-, isoxazolyl-, dioxanyl-, tetrahydrofuranyl and the like. "N-heterocyclyl" refers to a nitrogen-containing heterocycle. The term heterocyclyl encompasses heteroaryl-, which is a subset of heterocyclyl-. Examples of N-heterocyclyl residues include azetidinyl-, 4-morpholinyl-, 4-thiomorpholinyl-, 1-piperidinyl-, 1-pyrrolidinyl-, 3-thiazolidinyl-, piperazinyl and 4-(3,4-dihydrobenzoxazinyl). Examples of substituted heterocyclyl include 4-methyl-1-piperazinyl and 4-benzyl-1-piperidinyl-.